

REMARKS

Applicant believes that consideration of the following remarks will place this application in condition for allowance. Accordingly, reconsideration of the present application is respectfully requested.

I. The Claims

Claims 1, 5 – 13, 16 – 18, 20, 21, 25– 31, 33 – 43, 45, and 47 - 70 are presented for examination. Of the pending claims, Claims 1, 25, 28, 33, 51, 54, 60 and 68 are independent claims.

II. The Invention

Claims 1, 5 to 13, 16 to 18 and 20, 21 and 25 to 31 are directed to methods for inhibiting the growth of fungi on or in plant tissues by applying an aqueous solution including a fungi-inhibiting compound consisting of an auxin, together with an alkaline earth or transition metal, to seeds or tubers before planting or to roots, foliage, flowers or fruit of the plants after planting. Claims 1, 5 to 13, 16 to 18, 20 and 21 require specific auxins, e.g., indole-3-butyric acid, while Claims 25 to 31 merely specify an auxin or synthetic auxin. Claims 28 to 31 more specifically specify that the inhibited fungi is *Fusarium*. It is known from the prior art that application of such compounds may result in uncontrolled growth and death of plants. That knowledge, in fact, forms the basis of several very effective commercial weed killers. Accordingly, in order to achieve the desired results, it is critical that the specified auxin be applied in an amount effective to inhibit growth of harmful organisms causing the disease, but also in an amount insufficient to negatively effect growth of the plant tissues. That limitation is found in each of independent Claims 1, 25 and 28.

Claims 33 to 43, 45 and 47 to 59 are directed to methods for inhibiting the infestation of plants by insects and their larvae by applying an aqueous solution including an insect-inhibiting compound consisting of an auxin, together with an alkaline earth or transition metal, to specific plant parts after planting or to seeds or tubers before planting. Claims 51 to 53 limit the auxin to a synthetic auxin, while Claims 54 to 59 further limit the auxin to indole-3-butyric acid. Again, because such compounds may result in uncontrolled growth and death of plants, in order to achieve the desired results, it is critical that the auxin or plant growth hormone be applied in an amount effective to inhibit infestation by the insects and their larvae, but also in an amount insufficient to negatively effect growth of the plant tissues. That limitation is found in each of the independent Claims 33, 51 and 54.

Finally, Claims 60 to 70 are directed to seeds, seed pieces and tubers that have been treated with an aqueous solution including a fungi-inhibiting compound consisting of an auxin (Claims 60 to 67) or indole-3-butyric acid, either alone or in combination with indole-3-acetic acid (Claims 68 to 70), together with an alkaline earth or transition metal, to produce plants having enhanced resistance to fungi attack. Again, because such compounds may result in uncontrolled growth and death of plants, in order to achieve the desired results, it is critical that the auxin or plant growth hormone be present on the seed or seed piece in an amount effective to inhibit growth of harmful organisms, but also in an amount insufficient to negatively effect growth of the emerging plant tissues. That limitation is found in each of the independent Claims 60 and 68.

III. The Rejection under 35 U.S.C. § 103

Claims 1, 5 to 14, 16 to 18, 20 to 22, 25 to 31, 33 to 45, and 47 to 70 stand rejected under 35 U.S.C. §103(a) as being obvious and, thus, unpatentable over the disclosures in the Clough patent (United States Patent No. 4,496,388). Claims 23 and 24 also stand rejected under 35 U.S.C. §103(a) as being obvious and, thus, unpatentable over the disclosures in the Clough patent as applied to the remaining claims and further in view of the disclosures of the Drake or Eden patents (respectively, British Patent No. 1.565,906 and United States Patent No. 4,755,397).

The Clough patent discloses a fungicidal composition comprising a metal complex of specifically disclosed triazolylalkanetriol derivatives. It is asserted that the Clough patent discloses the use, with the claimed triazole and imidazole fungicidal compounds, of auxins, anionic surfactants and other components, including calcium carbonate. It is further asserted that Clough teaches such compositions may be used as aqueous dispersions and may be used to control fungi, including *phyophthora* and *rhizoctonia* on plants by application to the plants or their seeds.

The Examiner, however, admits that Clough does not exemplify the use of a composition including a metal complex of the claimed triazole and imidazole compounds, indole acetic acid, indole butyric acid and calcium lignosulphonate to control fungi or insects and their larvae on plants.

It is then concluded that Applicant's claimed invention would have been obvious in view of the disclosure of Clough and, accordingly, Claims 1, 5 to 14, 16 to 18, 20 to 22, 25 to 31 and 47 to 70 are rejected as obvious over Clough.

The Examiner correctly states that the Drake and Eden patents disclose the use of encapsulation of active ingredients to achieve slow release. This disclosure, combined with the disclosures of the Clough patent as applied is then asserted to render Claims 23 and 24 obvious. Applicant admits that encapsulation is well known and, accordingly, does not separately argue this rejection.

IV. The Response

Claims 1, 5 to 14, 16 to 18, 20 to 31 and 47 to 70 have been rejected as obvious under 35 U.S.C. §103(a) over the disclosure in the Clough patent, either alone, or with respect to Claims 23 and 24, together with the disclosure in the Drake or Eden patents. These rejections are respectfully traversed.

The rejection of Claims 23 and 24 is moot, those claims having been cancelled in the accompanying amendment.

The Examiner admits that the Clough patent neither discloses nor suggests the use of an auxin as the active component in a method for inhibiting growth of fungi or infestation by insects on plant tissues without harming the plant tissues. Each of the independent claims, i.e., Claims 1, 25, 28, 33, 51, 54, 60 and 68 have been amended to specify application of "an aqueous solution including a [fungi or insect]-inhibiting component consisting of" the auxin. Thus, the Clough patent which discloses the use of hazardous, complex, organic compounds, not the environmentally friendly auxins, as the fungicidally active component is readily distinguished.

Clough neither discloses nor suggests that auxins, preferably synthetic auxins, can be used as the active inhibiting component by inhibiting attack by fungi and by insects and their larvae without using the fungicidal triazoles and imidizoles he has

newly synthesized. In fact, Clough neither discloses nor suggests any means for protecting plants from attack by insects and their larvae.

It is important to recognize that the primary reference, the Clough patent, is directed to the synthesis of complex organic compounds, specifically triazole and imidazole, and to the use of these environmentally hazardous compounds as fungicides. It is exactly such hazardous environmental compounds that Applicant seeks to avoid by disclosing and claiming his novel and non-obvious methods for using auxins, particularly the synthetic auxin, indole-3-butyric acid, as an environmentally friendly way to control the attack on plants by both flora (fungi and bacteria) and fauna (insects and their larvae).

Neither the Clough patent, nor the secondary Drake and Eden patents, discloses or suggests the claimed use of an auxin, preferably a synthetic auxin, as the active inhibiting component for controlling the attack of fungi and of insects and their larvae on plants. Clough merely discloses the use of his newly synthesized complex triazole or imidazole organic compound as fungicides. While Clough suggests that these complex organic compounds, or salts or complexes thereof, may be applied, together with any number of other conventional compounds, including insecticides and plant growth regulators, Clough neither discloses nor suggests the use of auxins to protect against attack by fungi and insects and their larvae, in the absence of his fungicidal triazole and imidazole compounds.

The Examiner has pointed to no teaching in Clough or elsewhere to lead one to believe that auxins, particularly the synthetic auxin indole-3-butyric acid, might be used as the active inhibiting component to protect plants from the attack of fungi and of

insects and their larvae. The Examiner has pointed to no teaching in Clough or elsewhere that auxins, particularly the synthetic auxin indole-3-butyric acid, might be used as environmentally friendly substitutes for the conventional organic fungicides and insecticides, such as the triazole and imidizoles disclosed by Cough, which are known to do harm to the environment.

Clough neither discloses nor suggests that auxins (particularly the synthetic indole-3-butyric acid) might be employed as the active inhibiting component to protect plants from fungi and from insects and their larvae without harming the plant tissues. In fact, nothing in the Clough patent suggests that the auxins even be considered for use in this manner. Because neither the Clough patent, nor the secondary patents applied only against Claims 23 and 24, discloses this claimed feature, the cited references are deficient.

In the absence of any teaching to suggest that auxins, particularly the synthetic auxin indole-3-butyric acid, might be used to protect plants from fungi and insects and their larvae, the rejection of the pending claims of the present application over the disclosure in the Clough patent of conventional, complex organic compounds (the newly synthesized triazoles and imidizoles) as fungicides must be withdrawn.

Thus, Applicant respectfully requests withdrawal of the present rejections under 35 U.S.C. §103.

V. The Conclusion

None of the prior art cited by the Examiner or known to Applicant discloses or suggests the invention as now claimed. None of that prior art discloses or suggests (a) methods for protecting plant tissue from attack by fungi or insects/larvae by

applying an aqueous solution including an effective amount of a **fungi or insect inhibiting component consisting of an auxin (preferably indole-3-butyric acid)**, together with an alkaline earth or transition metal, to the seeds or tubers of the plant before planting or to the roots, foliage, flowers or fruit of the plant after planting or (b) seeds, seed pieces or tubers treated with such a fungi or insect inhibiting component consisting of a auxin, together with an alkaline earth or transition metal, to provide the emerging plant with protection against attack by such pathogenic flora and fauna.

Applicant believes that examination of the claims of this application should be concluded expeditiously and that a Notice of Allowance should promptly issue. Applicant, accordingly, requests that all of the claims in the captioned application, i.e., Claims 1, 5 to 13, 16 to 18, 20, 21, 25 to 31, 33 to 43, 45 and 47 to 70, be promptly passed to issue.

No additional claims fees are required with this Response. However, the Commissioner is authorized to charge any fee which may be required with this Response to Deposit Account No. 19-2112. This authorization is made in duplicate in the accompanying letter.

If the Examiner believes that a telephone conference would expedite allowance, he is urged to contact the undersigned at (713) 227-8008.

Respectfully submitted,

/Walter R. Brookhart/

Walter R. Brookhart
Reg. No. 29,518

SHOOK, HARDY & BACON, L.L.P.
600 Travis Street, Suite 1600
Houston, Texas 77002-2911
Tel.: (713) 227-8008
Fax: (713) 227-9508